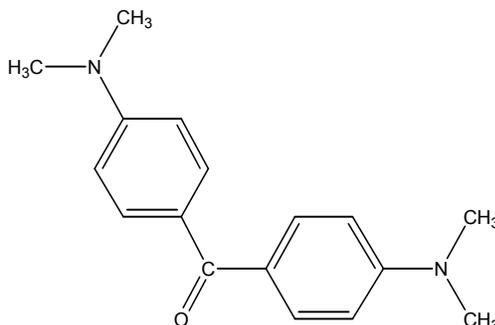


MICHLER'S KETONE (4,4'-(DIMETHYLAMINO)BENZOPHENONE)

CAS No. 90-94-8

First Listed in the *Third Annual Report on Carcinogens*



CARCINOGENICITY

Michler's ketone (4,4'-(dimethylamino)benzophenone) is *reasonably anticipated to be a human carcinogen* based on sufficient evidence of carcinogenicity in experimental animals (NCI 1979). When administered orally in the diet, Michler's ketone induced increased incidences of hepatocellular carcinomas in rats of both sexes and in female mice and hemangiosarcomas (primarily subcutaneous) in male mice. In view of an NCI/OTA correlative interpretation, these results can be considered to provide sufficient evidence for the carcinogenicity of Michler's ketone in experimental animals (Griesemer and Cueto 1980, OTA 1981).

No adequate human studies of the relationship between exposure to Michler's ketone and human cancer have been reported.

PROPERTIES

Michler's ketone is a blue powder or white to green-colored leaflets. It is practically insoluble in water, slightly soluble in ether, and soluble in alcohol, pyrimidine, and benzene. Michler's ketone is combustible and is incompatible with strong oxidizing and reducing agents (HSDB 2001, NTP 2001).

USE

Michler's ketone is a chemical intermediate used in the synthesis of at least 13 dyes and pigments, particularly auramine derivatives (NCI 1979, Kirk-Othmer 1983, HSDB 2001). These pigments are used to dye paper, textiles, and leather, and one is used as an antiseptic fungicide (Sax 1987).

PRODUCTION

No data are currently available on the production of Michler's ketone. One U.S. manufacturer was identified (HSDB 2001). In 1975, it was estimated that U.S. production volume of the compound was greater than 2,000 lb (HSDB 2001). Currently, 18 U.S. chemical

Michler's Ketone (4,4'-(Dimethylamino)benzophenone) (Continued)

suppliers for Michler's ketone are reported (Chem Sources 2001). The TSCA Inventory (1979) identified six companies producing 55,000 lb of Michler's ketone in 1977 and four companies importing 55,000 lb. In 1972, the U.S. imported approximately 1,200 lb of Michler's ketone (HSDB 2001). Imports in 1975 and 1983 were about 44,000 lb and 24,000 lb, respectively (USITC 1984, HSDB 2001). No current data on imports or exports are available.

EXPOSURE

The primary routes of potential human exposure to Michler's ketone are inhalation and dermal contact. The risk of potential occupational exposure is greatest for workers in facilities that manufacture the compound or any of the dyestuffs for which Michler's ketone is an intermediate. The National Occupational Exposure Survey (1981-1983) estimated that 1,976 total workers, including 403 women, potentially were exposed to Michler's ketone in the workplace (NIOSH 1984). Residual levels of trace impurities of Michler's ketone may be present in some dyes based on the chemical and in the final consumer products. Data were inadequate to describe the actual levels of impurities in the final product and the potential for consumer exposure and uptake. EPA's Toxic Chemical Release Inventory (TRI) listed two industrial facilities that released 869 lb Michler's ketone in 1999. This level is slightly less than the levels released in 1988 (1,100 lb) and in 1995 (1,577 lb) (TRI99 2001).

REGULATIONS

EPA regulates Michler's ketone under the Resource Conservation and Recovery Act (RCRA) and the Superfund Amendments and Reauthorization Act (SARA). This compound is regulated as a hazardous constituent of waste under RCRA, and it is subject to reporting and record-keeping requirements under RCRA and SARA.

OSHA regulates Michler's ketone under the Hazard Communication Standard and as a chemical hazard in laboratories. Regulations are summarized in Volume II, Table 113.

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Michler's Ketone (4,4'-(Dimethylamino)benzophenone) (Continued)

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